

REMARKS

Claims 1-20 are now in the application. By this Amendment, claim 1 has been amended. Support for the amendment to claim 1 is found at least at page 1, lines 10-12, of Applicants' disclosure. Claim 11 has previously been withdrawn by the Examiner. No new matter has been added.

Claims 1-10 and 12-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,977,126 to Mauldin et al. in view of U.S. Patent No. 6,274,763 to Ruedinger et al.

As appreciated by the Examiner, Mauldin cannot reasonably be considered to suggest a gas phase oxidation of aromatic hydrocarbons. Instead, Mauldin suggests a catalyst for the Fischer-Tropsch synthesis, which involves transformation of H₂ into H₂O. Applicants herewith amend claim 1 to recite a catalytic gas-phase oxidations of aromatic hydrocarbons to carboxylic acids and/or carboxylic anhydrides to even more clearly distinguish from Mauldin.

Claim 1 recites, among other features, a parameter K defined as

$$K = 0.020 Q_{\text{gas}} - 0.055 Q_{\text{susp}} + 7.500 B_{\text{susp}} - 0.667 M_{\text{support}} + 2.069 T_{\text{gas}} - 7$$

satisfies the relationship 127.5 ≤ K ≤ 202.

At least this feature of the independent claim cannot reasonably be considered to be suggested in Mauldin, Ruedinger, or any permissible combination thereof.

At page 8, third paragraph, the Office Action asserts that the %yield in Ruedinger and the RIM thickness in Mauldin are analogous to parameter K recited in claim 1. Further, the Office Action considers parameters such as temperature or weight percent of binder to be within the claimed range, and asserts that, therefore, parameter K would be within the range of from 127.5 to 202. Applicants respectfully disagree with this assertion and note that not even the example set forth at the top of page 6 in the Office Action provides a K value within the range, as set forth in more detail below.

At the onset, the Office Action acknowledges that Mauldin fails to suggest the amount of binder used. However, the absence of a specific teaching for a binder cannot support a suggestion of using a certain percentage of such a binder. Mauldin suggests, at col. 6, lines 50-52, using aqueous solutions of cobalt nitrate and perrhenic acid to impregnate the catalyst support. However, Mauldin fails to suggest particles of inorganic materials attached to a support. After the spraying of the solutions, the impregnated metal compounds must be decomposed to the corresponding metal oxides. Contrary to the assertion in the Office Action, Mauldin fails to suggest using particles, such as V₂O₅.

The Office Action scales example 1 in Table 2 of Mauldin to 80 kg of support material and multiplies solution rate and fluidized air rate accordingly, having values of 1680 and 7608, respectively. The average bad temperature, however, remains at 95 °C. Further, the Office Action uses 3% of a binder, apparently as suggested in Ruedinger, as Mauldin fails to suggest a binder. Assuming a skilled artisan would combine Mauldin and Ruedinger, the example in the Office Action yields the following K value:

0.020 * 7608 – 0.055 * 1680 + 7.500 * 3 – 0.667 * 80 + 2.069 * 95 – 7 ≈ 218, which is outside the claimed range. Thus, according to the example in the Office Action, even if a skilled artisan were to combine Mauldin and Ruedinger, the resulting combination fails to suggest the combination of all of the features of claim 1.

Moreover, the proposed modification in the Office Action fails to take into account the effect of temperature on the claimed process. The Office Action picks three values out of Table 2, but leaves the temperature as suggested in Mauldin. However, a comparision between inventive example 1 and comparative example 2 at pages 7 and 8 of the specification shows that, all other parameters being equal, choosing a temperature such that K is below the claimed range results in production of catalysts having many twin rings due to insufficient drying.

At page 8, last paragraph, the Office Action asserts that Applicants have argued that the applied citations are not concerned with a fluidized bed. Applicants respectfully disagree with this assertion. Instead, the April 28, 2009 Amendment argued that Ruedinger is not concerned

with a fluidized bed reactor. The specification, at page 2, lines 30-31, and the April 28, 2009 Amendment, at page 7, third full paragraph, discuss the fluidized bed reactor of Mauldin.

Applicants appreciate the indication that withdrawn claim 11 will be considered for rejoinder upon allowance of claims 1-10 and 12-20.

Claims 2-20 are in condition for allowance for at least their respective dependence on an allowable claim 1, as well as for the separately patentable subject matter that each of these claims recites.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Applicants concurrently herewith submit the requisite fee for a Request for Continued Examination and a Petition for a two-month Extension of Time. Applicants believe no additional fee is due with this response. However, if any such additional fee is due, please charge our Deposit Account No. 22-0185, under Order No. 13111-00037-US1 from which the undersigned is authorized to draw.

Dated: November 23, 2009

Respectfully submitted,

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